Iowa Farm Science

Volume 18 | Number 1 Article 2

7-1963

New Oat Varieties for 1964 - Bonkee and Neal

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NEW OAT VARIETIES FOR 1964 BONKEE AND NEAL

These new oat varieties are more resistant to stem rust and crown rust than other Cherokee types. Bonkee yields averaged as well as Cherokee, and Neal produced the highest yields in 1961-62 Iowa oat variety trials.

by Oliver A. Knott, K. J. Frey and J. A. Browning

TWO NEW early maturing oat varieties, Bonkee and Neal, will be available for commercial production in Iowa in 1964. Both varieties carry more resistance to stem rust and crown rust than the other Cherokee-type varieties. Bonkee produces short straw and plump seeds that are white to pink, like Cherokee. Its heads are semi-loose, and its leaves are short and dark green. Neal also is short and produces plump seeds that vary from ivory to buff.

Of the two varieties, certified seed of Bonkee will be most plentiful, while certified seed of Neal may be limited. Here are more details on performance, disease resistance, origin and seed of the two new oats.

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Their Performance . . .

Bonkee was tested in the Iowa Overstate Oat Variety Trials in 1961 and 1962. Its average performance has been about the same as Cherokee (see table 1). There wasn't much oat stem rust in either year. But, if stem rust occurs again as in 1953 and 1954, Bonkee should yield more than other Cherokee-type varieties.

Neal was the highest yielding variety in each of the Iowa oat variety trial districts in 1961 and 1962. This variety averaged about ½ pound lighter in test weight than Bonkee, but Neal had a better lodging score.

You can preview these new varieties this year. They're being grown in test plots at 10 of the outlying experimental farms and in demonstration plots in 43 Iowa counties. Many fields of these varieties are being grown for certification in 1963. If you want to see how Bonkee and Neal compare with the older varieties, ask your county extension director for the location of the demonstration plot closest to you.

Disease Resistance . . .

Bonkee, in addition to its complete resistance to the prevalent races of stem rust, has tolerance to the old and new races of crown rust (table 2). Crown rust attacks the Cherokee-type varieties, but it does not severely damage them.

Neal is resistant to races 7 and 7A of stem rust but is suceptible to races 6 and 8. It's also resistant to the older races of crown rust but is susceptible to the newer ones.

Race 6 of stem rust appears to be

TABLE 1. Performance of oat varieties in Iowa, 1961-62.

Variety	Height	Heading date (June)	Lodging score[a]	Test weight (lbs.)	Yield in bushels per acre			
					North-west	North-central	North-east	South
Neal	Short	11	2.5	32.6	98	116	95	95
Bonkee	Short	12	3.4	33.0	91	101	91	77
Cherokee	Short	12	3.3	32.9	92	104	88	79
Nodaway	Medium	12	2.3	34.3	94	108	92	82
Burnett	Medium	14	3.1	33.3	79	104	94	90
Goodfield	Short	15	1.9	34.8	88	104	92	83

[a]1.0 = erect; 5.0 = flat.

the most dangerous. In future stem-rust outbreaks in Iowa, this race may be the most prevalent.

Origin . . .

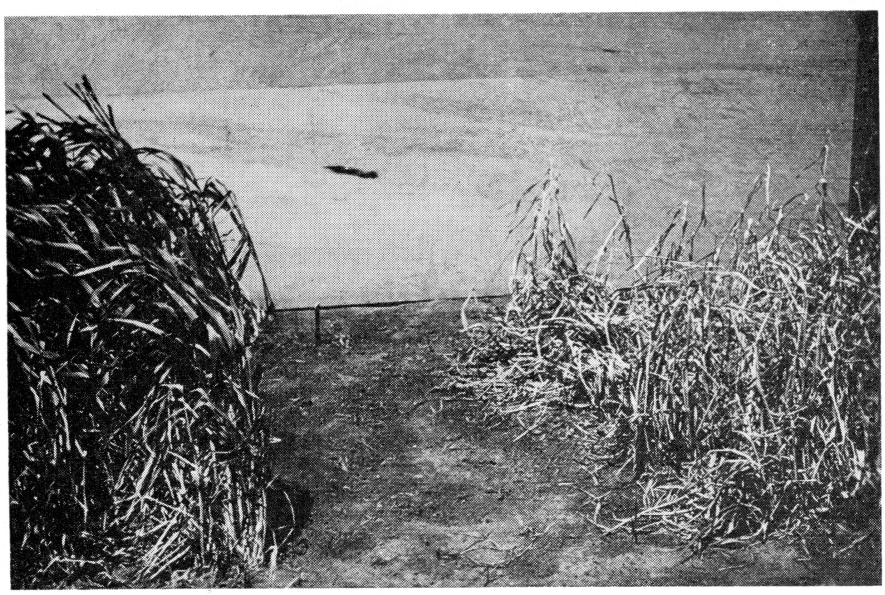
Neal, developed at the Nebraska Agricultural Experiment Station, is a selection from the crossing of Nemaha x (Andrew x Landhafer). Its name combines *Ne* from Nemaha, *a* from Andrew and *l* from Landhafer.

TABLE 2. Comparative reaction of oat varieties to races of crown rust and stem rust.

Variety	Stem rust races				Crown rust	
	6	7	7A	8	Old races	New races
Neal	S	R	R	S	R	S
Bonkee	R	R	R	R	MR	MS
Cherokee	S	S	S	R	MS	MS
Nodaway	R	R	R	R	S	S
Burnett	R	R	S	R	MS	S
Goodfield	R	R	R	R	R	S

R = resistant, MR = moderately resistant, MS = moderately susceptible, S = susceptible.

Oats being cut and windrowed for later combining from the swaths.



Left, rust-resistant oats. Right, oat plants destroyed by rust.

Bonkee, developed at Iowa State, gets its name from a combination of the names of its ancestors: the *Bon* from Bonham and the *kee* from Cherokee. It was developed because of what was learned about stem-rust damage in 1953 and 1954. Crown rust (leaf rust) also was severe in those 2 years. The Cherokee-type oat varieties resisted stem rust better than other varieties then being grown. But they were hit later by stem-rust races to which they had no resistance.

After the experience of 1953, we decided to add genetic traits to the Cherokee-type varieties so they would be resistant to stem rust. Doing this required the addition of two genes from a Canadian oat strain called R.L. 2105. We call them gene A and gene B. The A gene gives resistance to stem rust races 7 and 7A; and the B gene gives resistance to races 6, 7 and 8.

The A gene was added into one line of the Cherokee variety and the B gene was added into another line of Cherokee. The strain resulting from the crossing of these two lines was called Bonkee. It was first compared with Cherokee, Bonham and Nemaha in yield tests at Ames in 1960. Under the stem rust-free conditions of 1960, its appearance and performance were about the same as the other Cherokee-type varieties. But in years of stem-rust outbreaks, both Bonkee and Neal should produce higher yields than the less rust-resistant varieties.

Seed Sources . . .

Bonkee is being grown for certification in 57 Iowa counties as well as in South Dakota and Minnesota. About 11,000 bushels of foundation seed were released in Iowa. So certified Bonkee seed should be available locally if you want to try it in 1964.

About 2,000 bushels of foundation Neal seed were distributed to Iowa certified seed growers. Since the foundation seed supply was short, certified seed of Neal for sale in 1964 may be limited.

A list of the growers of certified Bonkee and Neal will be published in the Iowa Crop Improvement Association Seed Directory to be available at your county extension office in November.